Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of this application.

Listing of Claims:

1. (currently amended) A method for cycling a switch between an ON-time portion and an OFF-time portion to provide power to a ~~load~~ photoflash capacitor, said method comprising:

converting a current being conducted through the switch to a comparison voltage;

comparing ~~a current level being conducted through the switch to a reference current level~~ the comparison voltage to a first reference voltage to control ~~said~~ the ON-time portion;

comparing a voltage ~~level~~ of a node of the switch to a second reference voltage ~~level~~ to control ~~said~~ the OFF-time portion; and

cycling between the ON-time portion and the OFF-time portion to provide power to the ~~load~~ photoflash capacitor.

2. (cancelled)

3. (currently amended) The method of claim 1, further comprising:

delivering power to the ~~load~~ photoflash capacitor by cycling between the ON-time portion and the OFF-time portion of the switch.

4. (currently amended) The method of claim 3, further comprising:

ceasing delivery of power when the voltage of the ~~load~~ photoflash capacitor is equal to, or greater than, a predetermined voltage level.

5. (currently amended) The method of claim 1, wherein the switch toggles from the ON-time portion to the OFF-time portion when the ~~current level~~ comparison voltage is equal to, or greater than, the first reference ~~current level~~ voltage.

6. (currently amended) The method of claim 1, wherein the switch toggles from the OFF-time portion to the ON-time portion when the voltage ~~level~~ of the node of the switch is equal to, or less than, the second reference voltage ~~level~~.

7. (currently amended) A charging circuit that cycles a switch between an ON-time portion and an OFF-time portion to charge a ~~load~~ photoflash capacitor, said circuit comprising:

ON-time circuitry that ~~compares~~ converts a current ~~level~~ being conducted through the switch to a comparison dependent voltage and compares the comparison voltage to a first reference ~~current level~~ voltage to control the ON-time portion;

OFF-time circuitry that compares a voltage ~~level~~ being applied to a node of the switch to a second reference voltage ~~level~~ to control the OFF-time portion; and

latch circuitry that cycles the switch between the ON-time portion and the OFF-time portion to provide power to the photoflash capacitor.

8. (original) The charging circuit of claim 7, wherein the latch circuitry toggles the switch ON and OFF based on the outputs of the ON-time circuitry and the OFF-time circuitry.

9. (currently amended) The charging circuit of claim 7, further comprising:

a power source;

a transformer coupled to the power source and the switch; and

wherein the cycling between the ON-time portion and the OFF-time portion of the switch transfers power from the power source to the ~~load~~ photoflash capacitor via the transformer.

10. (currently amended) The charging circuit of claim 7, further comprising measuring circuitry that is coupled to the switch and that measures the output voltage of the ~~load~~ photoflash capacitor.

11. (currently amended) The charging circuit of claim 10, further comprising:

control circuitry that is coupled to the measuring circuitry and that disables the switch when the output voltage of the ~~load~~ photoflash capacitor is at, or greater than, a predetermined voltage level.

12. (currently amended) A method for charging a photoflash capacitor to a predetermined voltage, said method using a capacitor charging circuit that transfers power to the photoflash capacitor through a transformer, said method comprising:

delivering power to the photoflash capacitor, wherein power delivery is performed by cycling between (1) providing power to the transformer until current being provided to the transformer is equal to, or greater than, a predetermined ~~reference~~ current level and (2) delivering power to the photoflash capacitor until the voltage across the transformer is equal to, or less than, a predetermined reference voltage;

measuring the voltage level of the photoflash capacitor during power delivery; and

terminating power delivery in response to determining that the voltage level is equal to, or greater than, the predetermined voltage.

13. (currently amended) The method of claim 12, the delivering power comprises:

toggling a switch ON and OFF;

providing current to the transformer when the switch is ON; and

using the current in the transformer to charge the photoflash capacitor when the switch is OFF.

14. (original) The method of claim 13, further comprising:

using the current being provided to the transformer to determine an ON-time portion of a power delivery switching cycle; and

using the voltage across the transformer to determine an OFF-time portion of the power delivery switching cycle.

15. (currently amended) The method of claim 12, the delivering power to the photoflash capacitor comprises:

conducting a current through a switch when the switch is ON;

monitoring the current through the switch;

toggling the switch OFF when the current being conducted through the switch is equal to, or greater than, the predetermined reference current;

monitoring a voltage applied to the switch when the switch is OFF; and

toggling the switch ON when the voltage is equal to, or less than, the predetermined reference voltage.

16. (currently amended) A capacitor charging circuit that charges a photoflash capacitor to a predetermined output voltage by transferring power through a transformer, said capacitor charging circuit comprising:

power delivery circuitry that delivers power to the capacitor by cycling between (1) providing power to the transformer until current being provided to the transformer is equal to, or greater than, a predetermined ~~reference~~ current level and (2) delivering power to the capacitor until the voltage across the transformer is equal to, or less than, a predetermined reference voltage;

measuring circuitry coupled to the power delivery circuitry and that measures the output voltage level of the capacitor during power delivery; and

control circuitry that is coupled to the measuring circuitry and that disables the power delivery circuitry when the measuring circuitry determines that the

output voltage level of the photoflash capacitor is at, or greater than, the predetermined output voltage.

17. (original) The capacitor charging circuit of claim 16, the power delivery circuitry comprising:

a switch;

ON-time circuitry that is coupled to a first node of the switch;

OFF-time circuitry that is coupled to a second node of the switch; and

a latch that is coupled to a third node of the switch and is further coupled to receive the outputs of the ON-time circuitry and the OFF-time circuitry, the latch cycles the switch ON and OFF based on the outputs of the ON-time circuitry and the OFF-time circuitry.

18. (currently amended) The capacitor charging circuit of claim 17, wherein the measuring circuitry determines the output voltage of the photoflash capacitor based on a voltage level at the second node of the switch when the switch is OFF.

19. (original) The capacitor charging circuit of claim 17, wherein the ON-time circuitry sets an ON-time portion of a switching cycle in the power delivery circuitry based on a current being conducted by the switch.

20. (original) The capacitor charging circuit of claim 17, wherein the OFF-time circuitry sets the OFF-time portion of a switching cycle in the power delivery circuitry based on a voltage level at the second node of the switch.

21. (currently amended) The charging circuit of claim of claim 16, wherein the power delivery circuitry is coupled to a transformer, the transformer serving as the medium that enables the power delivery circuitry to deliver power to the ~~load~~ photoflash capacitor.

22. (new) A method for cycling a switch between an ON-time portion and an OFF-time portion to provide power to a photoflash capacitor, said method using a charging circuit that comprises a transformer, the transformer comprises a primary winding and a secondary winding, said method comprising:

charging the photoflash capacitor with the charging circuit;

using current being conducted through the primary winding to determine the duration of the ON-time portion; and

using voltage across the primary winding to determine the duration of the OFF-time portion.

23. (new) The method of claim 22, further comprising:

cycling between the ON-time portion and the OFF-time portion to provide power to the photoflash capacitor.

24. (new) The method of claim 23, further comprising:

ceasing the cycling when a voltage level indicative of the voltage level of the photoflash capacitor is equal to, or greater than, a predetermined voltage level.

25. (new) The method of claim 22, further comprising:

measuring a voltage proportional to the voltage level of the photoflash capacitor during the OFF-time portion.

26. (new) A circuit comprising:

a photoflash capacitor;

a charging circuit that cycles a switch between an ON-time portion and an OFF-time portion to charge the photoflash capacitor, the charging circuit comprising:

a transformer comprising a primary winding and a secondary winding;

ON-time circuitry that determines the ON-time portion using current being conducted through the primary winding; and

OFF-time circuitry that determines the OFF-time circuitry using voltage across the primary winding.

27. (new) The circuit of claim 26, further comprising:

latch circuitry coupled to receive signals from the ON-time and OFF-time circuitry and operative to cycle the switch between the ON-time portion and the OFF-time portion in response to the received signals.

28. (new) The circuit of claim 26, wherein the latch circuitry is selectively disabled when a voltage level

indicative of the voltage level of the photoflash capacitor is equal to, or greater than, a predetermined voltage level.

29. (new) The circuit of claim 26, further comprising:

measuring circuitry coupled to the primary winding that measures a voltage level proportional to the voltage level of the photoflash capacitor.

30. (new) The circuit of claim 29, wherein said measuring circuitry measures the proportional voltage only during the OFF-time portion.

31. (new) A method for charging a photoflash capacitor, said method comprising:

providing power to the photoflash capacitor by cycling a switch between an ON-time portion and an OFF-time portion; and

measuring a voltage level proportional to the voltage level of the photoflash capacitor only during the OFF-time portion of the cycling.

32. (new) A charging circuit that charges a photoflash capacitor, said charging circuit comprising:

power delivery circuitry that delivers power to the photoflash capacitor by cycling a switch between an ON-time portion and an OFF-time portion; and

measuring circuitry that measures a voltage level proportional to the voltage level of the photoflash capacitor only during the OFF-time portion.

33. (new) The method of claim 12, further comprising:

terminating the measuring in response to determining that the voltage level is equal to, or greater than, the predetermined voltage.